Lab Activity and Research Review

Spring 2023

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A Letter from the Director

Spring 2023 was an exciting time for the Berkeley Risk and Security Lab. After our launch in October 2022, we came into the semester eager to build out our capabilities, expand our offerings, set an ambitious research agenda, and further establish ourselves as a critical center for national and international security research and convening in the Bay Area.

This first full semester as BRSL has been a whirlwind. In January, BRSL extended offer letters to our first round of hires. On March 1st, Dr. Jane Darby Menton joined the lab as our inaugural Research Scholar and Leah Walker joined us as our Assistant Director. BRSL also hosted a number of in-person events at Berkeley, featuring stakeholders in academia, government, and the private sector. Further collaborations included a wide range of partners including the United Nations Institute for Disarmament Research (UNIDIR), Stanford CISAC, Swissnex in San Francisco, and OpenAI.

This semester BRSL experts participated in RSA, ISA, SW21, and cPASS conferences and published in *Lawfare, Foreign Policy,* and the *Bulletin of Atomic Scientists*, while BRSL faculty taught three security related courses. The lab also developed its inaugural research agenda and fundraising strategy. Our Spring milestones can be found in further detail in Appendix I.

We're pleased with the progress we've made on our commitment to support Berkeley students, to collaborate within, and outside of, academia, and to conduct research at the intersection of technology, risk, and security. We also know that we have only been able to come this far thanks to our wide and generous support network. Thank you for your support and encouragement throughout this semester

We are very much looking forward to what summer and fall will bring to BRSL and to sustaining the exciting progress that we have made thus far.

Thank you for your continued support,
Dr. Andrew W. Reddie
BRSL Founder and Faculty Director

Semester Themes

I. Academic Collaboration within and outside the UC System

The Berkeley Risk and Security Lab takes seriously its role as an academic institution, both within the University of California system and as part of the broader national and international academic community. BRSL programming consciously seeks to engage with members of those different ecosystems.

This semester, we collaborated with various University of California, Berkeley centers, institutes, labs, and consortiums to sponsor events and research, and organize workshops. Activities included hosting UC faculty dinners and lunches with BRSL guests, submitting proposals and supporting postdoctoral appointments with other entities on campus, and interacting with individuals and entities across the UC system wherever possible.

Outside the UC system, BRSL continues to engage with academics and academic institutions, including an April workshop at Stanford University with Stanford CISAC, a guest visit from George Washington University's Peter Devine, and a planned fall conference with Italy's National University Centre for Applied Economic Studies. *These partnerships and others are depicted in Figure I below*.

Figure I - BRSL Berkeley and External Partners

Berkeley Partners			**External Partners**		
Events ▲		*Workshops* ■	*Research* ◉		*Funding* ◈
Center for Security in Politics	◉ ◈		OpenAI		■
Institute for International Studies	▲		Stanford CISAC		■
Nuclear Science and Security Consortium	▲		UNIDIR		▲ ■
Nuclear Policy Working Group	▲		Swissnex in San Francisco		▲ ■

Center for Long Term Cybersecurity	▲ ◈	Sandia National Labs	◉ ◈
CITRIS Policy Lab	▲	Italy's National University Centre for Applied Economic Studies	■

II. Bridging Public and Private Sectors

Given the technology-focused research of the Berkeley Risk and Security Lab, and our home in the Bay Area, the Lab is uniquely positioned to bridge gaps between public and private sectors, as well as engage with civil society. BRSL has found value in not just speaking with public and private entities, but also providing a place, and purpose, for both sides to meet and engage more substantively. Our February workshop with OpenAI on confidence building measures for artificial intelligence was the first of what will be many convenings on Berkeley campus. For that workshop, BRSL brought together members of the U.S. government, AI technologists, NGO researchers and academics. The BRSL-UNIDIR-Stanford workshop in April convened a similar mix of private sector, public sector, civil society, and academic experts.

Beyond hosting workshops, BRSL staff attended key conferences and convenings in its research areas, including the International Studies Association (ISA) Conference and RSA (a major cybersecurity conference). For RSA, BRSL hosted a side-event at Swissnex in San Francisco with the United Nations Institute for Disarmament Research (UNIDIR) as well as a workshop on Stanford University's campus with our CISAC partners. *These partnerships and others are depicted in Figure I above*.

III. Student Engagement

Part of the BRSL mission is to help University of California, Berkeley students engage with the national security field. Alongside this mission, BRSL takes seriously its commitment to showcase alternative viewpoints, career pathways, and extracurriculars to enrich students' educational experience and provide them with more options when they leave Berkeley.

In our work to fulfill this mission, during the Spring Semester BRSL continued our speakers' series (featuring Mike Brown, Dr. Jason Reinhardt, Dr. Peter Devine, a side event at RSA,

and Dr. Marion Messmer), offering students a range of perspectives on different national security issues, and the opportunity to engage with leading experts in the field. Additionally, BRSL is keen to provide more experiential learning opportunities to Berkeley students. As a start, this semester, BRSL invited students to participate in online Tantalus gaming sessions and BRSL faculty director Dr. Andrew Reddie participated in Center for Security in Politics' DC Immersion Week. He also organized a table-top exercise for students during the week.

BRSL also continues to support the activities of the Nuclear Policy Working Group and Cybersecurity Working Group on campus.

Figure II - BRSL Faculty Taught Classes - Spring 2023

Class	Semester	Faculty
INFO 290: Cybersecurity Working Group	Fall 2022/Spring 2023	Dr. Andrew Reddie
NFO 290S: War? Politics, Security, and Emerging Technology	Spring 2023	Dr. Andrew Reddie
CYBER 242: Cybersecurity Policy	Fall 2022/Spring 2023	Dr. Andrew Reddie

IV. Setting a Wide-Ranging Research Agenda

With the first members of BRSL staff joining in the Spring semester, we have been able to take stock of our resources, research interests, and partnerships to put together a diverse and multi-disciplinary research agenda. Our research falls under three pillars detailed below.

Figure III - BRSL Research Pillars

The Emergent Properties of Frontier Military Technologies

Projects in this portfolio include research on whether the deployment of low-yield nuclear weapons has stabilizing or destabilizing consequences, the integration of artificial intelligence and machine learning in military systems, cyber-attacks (across attack vectors and used by a variety of actors), and hypersonic weapons.

Emerging Technologies, Governance, and Regulation

This research area examines the viability of future governance regimes to address the risks posed by emerging technologies—from cyber weapons to narrow applications of artificial intelligence systems. Specifically, this area includes research on norms-based frameworks and confidence building measures for emerging technologies, the future of nuclear arms control, technological solutions to governance failures, and the use of legislation and executive action to control the proliferation of emerging technologies via export control regimes.

Innovation Networks in an Era of Strategic Competition

Our work within this research area seeks to understand how governments choose which levers to pull in terms of trade and investment policy and how to assess predictors for intervention.

Within these pillars BRSL staff conduct research, host workshops and events, and publish op-eds and journal articles. This spring those publications have included articles in *Lawfare*, *the Bulletin of the Atomic Scientists*, and *Foreign Policy*.

V. Planning for Sustainability

The Berkeley Risk and Security Lab is in the privileged position of launching with substantial financial support. Thanks to a generous sum of non-allocated seed funding from [Founders Pledge](), BRSL has been able to hire and conduct research with unusual freedom. However, the BRSL team is also committed to securing more funding to further the breadth of its team, research, and programming for students. The Berkeley Risk and Security Lab believes that through strategic use of the initial funds provided, we can expand our funding network in a way that will generate continued growth for the lab.

To this end, BRSL seeks to **(1)** secure funders who by capability or by notability give credibility, validity, or additional resources to BRSL research; **(2)** diversify funding streams to several different types of funders to anticipate shifts in the ecosystem; **(3)** broaden BRSL research, staff, and student services as new funding is received; and **(4)** demonstrate financial viability through a diverse funding network. In particular, BRSL will seek and apply for research grants, additional funding for staff hires, and activity specific funds.

Looking Ahead to Summer and Fall 2023

The Berkeley Risk and Security Lab looks forward to expanding its research and convening offerings as we go into the latter half 2023. In particular, we will focus on the following areas:

Expanding BRSL Staff and Research

Throughout the summer BRSL will support 2 summer faculty salaries as we focus on building out our in house research capacity. At the end of the summer, BRSL will welcome a new postdoctoral research scholar, which we will share with the Berkeley Center for Long-Term Cybersecurity. BRSL will also bring its new non-resident fellows into our research, workshops, and other activities.

Continuing to Convene

After a successful spring of convenings, BRSL will continue to organize convenings with an eye towards student services, academic collaboration, and public-private partnerships. During the fall semester BRSL will host a political economy conference with Italy's National University Centre for Applied Economic Studies (CIMET), as well as a workshop on examining the capacity building for an era of arms control with multiple near-peer adversaries. BRSL will also continue its speaker series, bringing new voices and perspectives to campus.

Broadening BRSL Offerings

During summer 2023 BRSL will stand up a new podcast as part of our plans to broaden our research offerings and outreach efforts. Our podcast, the Risk Calculus, will be made up of mini-series with 2-3 mini-series dropping each semester. The mini-series will be 4-6 episodes long, focus on a single theme, and each episode will last 25-35 minutes. The podcast will aim to provide an educational resource for Berkeley students and the broader public, and will seek to include UC Berkeley guests whenever possible. It will also coordinate with UC Berkeley professors to provide mini-series relevant to class offerings.

Figure IV - Podcast Episodes 1, 2, 3 Topics and Release Dates

Podcast 1

Wargaming | September 2023

Podcast 2

Political Economy of Security | November 2023

Podcast 3

AI and National Security Risk | January 2024

Thank you

In closing, we wanted to thank you—our partners—for your support in building the Lab and contributing to UC Berkeley's public service mission via the teaching, service, and public engagement fostered by the Laboratory. While we acknowledge the significant and increasingly complex challenges facing our world, we are optimistic that bringing the best of Berkeley to these problems and encouraging the next generation to engage on national and international security challenges will leave the world in a better place than we found it.

Appendix I - BRSL SPRING 2023 Milestones

Personnel

➢ **Dr. Jane Darby Menton was hired as the inaugural BRSL Research Scholar.** Dr. Menton joins BRSL after having read a PhD in Politics and International Studies at Cambridge as a Gates Scholar. Her thesis focus was on the design and performance of the Joint Comprehensive Plan of Action. Dr. Menton will continue working on issues of nuclear arms control, adversarial cooperation, and nuclear proliferation in the Middle East. Dr. Menton is a Schmidt Futures International Strategy Forum Fellow.

➢ **Leah Walker was hired as the BRSL Assistant Director.** Leah joins BRSL from the Institute of Security and Technology where she was a Senior Defense Associate. At BRSL, Leah will continue research on emerging defense technologies, nuclear and strategic weapons capabilities, and techno-industrial competition.

➢ **BRSL convened its inaugural class of BRSL fellows** featuring a mix of experts from industry, academia, and the national labs. The four fellows will be announced publicly in early May. BRSL fellows will serve for a 2-year term and will have access to on campus BRSL events and workshops, as well as the opportunity to collaborate with BRSL students and researchers on relevant projects. BRSL's inaugural fellow class will consist of Marina Favaro (Anthropic), Dr. Ruby Booth (Sandia National Labs), Dr. Sarah Shoker (OpenAI), and Dr. Jake Hecla (MIT).

Research

➢ **The BRSL team developed and agreed on a 2023 Research Agenda** that runs through the end of the year. The research agenda included projects for each of the BRSL research pillars, research products like white papers, emerging risk assessments, and podcasts, in-person workshops, and virtual and in-person events.

➢ **BRSL and our collaborators at Sandia National Laboratories kicked off a project** on disinformation and wedging in allied relationships. The project is part of Sandia National Labs' academic alliance program, of which UC Berkeley is a member and involves an investment of approximately $200k in the Lab over two years.

➢ **The BRSL team started work on a BRSL podcast series,** with a planned launch in September 2023. The podcast will feature micro-series of 4-5 episodes, with each micro-series focused on a topic related to risk and security. The first series will be on wargaming. Dr. Jane Darby Menton, who previously worked at CNN, *Foreign Affairs*, and the far-reaching Talking Politics podcast is spearheading the BRSL podcast

effort. In April the team planned out podcast format, recording cadences, series topics and guests, and podcast branding.

➢ **BRSL supported two public data generation sessions of the Tantalus war game focused on cyber deterrence**, part of the Program for Experimental Gaming and Analysis of Strategic Interaction Scenarios (PEGASIS) at Sandia National Laboratories, where Dr. Reddie is on the Wargaming Advisory Board.

BRSL Events

➢ **BRSL hosted a workshop with OpenAI,** bringing together experts from government, civil society, and industry to identify confidence building measures for national and international AI safety governance.

➢ **BRSL hosted Dr. Jason Reinhardt of Sandia National Laboratories** for a discussion on the nuclear deterrence challenges facing both the United States and the world at large. Dr. Reinhardt also spoke to students in Dr. Reddie's classes.

➢ **Dr. Reddie joined the Center for Security and Politics for their Immersion Week program in Washington DC.** The week featured a table-top exercise designed by Dr. Reddie hosted at the National War College.

➢ **BRSL hosted Mike Brown**, the former head of the Defense Innovation Unit at the Department of Defense, for a public talk on emerging security challenges in the Indo-Pacific. The April talk was followed by a dinner with Berkeley faculty, staff, and graduate students.

➢ **BRSL hosted Peter Devine, from George Washington University, in April**. Peter joined Dr. Reddie's classes and spoke to students about the intersection of economics and warfare.

➢ **On April 24th, BRSL hosted an RSA side event** at Swissnex in San Francisco in collaboration with the United Nations Institute for Disarmament Research (UNIDIR). The side event, "Governing the Cyber-AI Nexus," featured Dr. Reddie as moderator, Dr. Anthony Aguirre (UC Santa Cruz) as a keynote, and a panel with experts from academia, government, and the private sector.

➢ **On April 25th, BRSL co-hosted a workshop at Stanford University** with UNIDIR and Stanford CISAC as part of a UNIDIR foresight project looking at international security in 2045.

➢ **On May 8th, BRSL hosted Dr. Marion Messmer,** of Chatham House, at Berkeley for a

talk on the complexities of nuclear decision making.

➢ **On May 9th, BRSL hosted a webinar marking the 5 year anniversary of the US withdrawal from the JCPA.** BRSL Research Scholar Dr. Jane Darby Menton moderated the conversation with Hanna Notte (VCDNP), Nick Miller (Dartmouth), and Sahil Shah (CSR).

External Events

➢ **Dr. Reddie moderated a panel at UC San Diego's Center for Peace and Security Studies (cPASS) on Feb 22-24.** The workshop focused on the potential for state interaction in the cyber domain leading to conflict escalation.

➢ **Dr. Reddie spoke at the Harvard Belfer Center,** where he discussed wargaming, nuclear weapons, and international security.

➢ **Dr. Reddie presented twice at the International Studies Association convention,** including at a workshop on *War Gaming and Social Science Inquiry: Towards a New Data-Generating Process* as well as a paper comparing the applications of multiple synthetic data generation tools applied to international security questions.

➢ **Dr. Reddie joined a panel at the Military Operations Research Society** on February 28, 2023**.** His remarks focused on the importance of government sponsorship for wargaming methods development.

➢ **Dr. Reddie gave a talk at the Center for Strategic and International Studies** on March 30, 2023 in Washington, DC**.** His remarks focused on the analytical applications of wargaming used to address national security challenges.

➢ Dr. Reddie, Dr. Menton and Leah Walker participated in, and will continue to participate in, **National Nuclear Security Administration's Civil Society Engagement sessions**.

➢ **Dr. Reddie and Dr. Menton participated in the Center for Security and Politics' workshop** with the Science and Technology Branch of the DOJ/FBI.

➢ **Dr. Menton attended the Schmidt Futures International Strategy Forum** in Laguna BeachCalifornia.

Publications

➢ **Dr. Reddie and Dr. Bethany Goldblum published an article in *Lawfare*** on the utility

of war-games, the analysis problem of traditional wargames, and the role that experimental war-games can play in adding analytical utility to the practice.

➢ Dr. Reddie published an article in the *Bulletin of the Atomic Scientists* which discusses Russia's use of Kinzhal hypersonic missiles against Ukraine in March 2023 and the alarmism the use of such hypersonic missiles generates in the United States.

➢ Dr. Jane Darby Mention published an article in *Foreign Policy* reflecting on five years since the US withdrawal from the JCPOA and future nuclear proliferation challenges

Fundraising

➢ The BRSL submitted a proposal to the Counter Proliferation and Arms Control Centre in the UK Foreign, Commonwealth, and Development Office. The proposal, "New Reactors, Proliferation Pathways, and Safeguards" focuses on the proliferation risks stemming from the Gulf's expanding nuclear power sector. BRSL will hear back from CPACC in May.

➢ The BRSL in collaboration with Nuclear Engineering submitted a proposal to the National Nuclear Security Administration (DOE/NNSA). The proposal explores the nuclear proliferation pathways associated with advanced nuclear reactor designs.

➢ BRSL (in collaboration with CSP) received funding from Lawrence Berkeley National Laboratories for a project on emerging technology governance.